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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,484	11/28/2003	Jun-Ku Han	45545.18.0	1033

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EXAMINER
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EASTHOM, KARL D

ART UNIT	PAPER NUMBER
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2832

DATE MAILED: 04/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/724,484

Applicant(s)

HAN ET AL

Examiner

Karl D. Easthom

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a).. In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/21/5.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2 and 4-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Chan et al. (5852397) or Zhang et al. (5831510). Chan discloses the claimed invention at Figs. 8 or 9, with resistance element 17, first and second conductive layers 49, 15 on the upper surface, and first and second electrodes 13 on the lower surface. The first conductive layer is directly connected to the second electrode layer 13 under it, through the via or first connector 51. This first connector 51 is also for electrically connecting, or electrically connects, all parts of the device, since the whole device is electrically connected, so that it electrically connects the first conductive layer to the first electrode (on the opposite side of the device) as required by claims 1, 8, 9 and 14. The other via 31 is the second connector. In claim 2, the current path is as claimed. For claim 4, the gap is depicted as smaller. For claim 5, the polymer is PTC. For claims 6-7, copper for the layers is disclosed at col.13, lines 55-60. For claim 10, the gap is rectangular. For claim 11, the electrodes are as claimed. Claim 14 follows from above. In a similar fashion, Zhang discloses the claimed invention at Fig. 11, with resistance element 17, first and second conductive layers 15, and first and second electrodes 13. That is, the first conductive layer is directly above the second electrode layer on the left while the second conductive layer is directly above the first electrode layer on the right. In claim 2, the current path is as claimed. Similar remarks apply to the other claims, with copper at col. 8, lines 35-40 for claims 6-7. For claims 8-9, see through holes 67 at the side. The paths for claims 12-13 are

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present as claimed since current flows across the gaps and device. While there is minimal current flow between the first conductive layer and second electrode via the resistance element since they are directly electrically connected by the first connector, there is some parallel minimal current flow since the direct electrically path of the first connector has a finite resistance so that the first connector and resistor are in electrical parallel. Similar remarks apply to the other current flow.

3. Claims 1-2, 4, 8, and 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Inoue et al. (6,172,592). Inoue et al. discloses the claimed invention at Fig. 2A, with resistance element 2, first and second conductive layers 4,3 on the upper face, first and second electrodes 3,4 on the lower face. First electrode 3 and second conductive layers 3 face each other directly and substantially overlap each other; that is, they are both on the right hand side of the device. Similar remarks apply to the second electrode layer and first conductive layer with both on the left hand side of the device. The connectors 6, 7 are for electrically connecting, or electrically connect, all layers to each other since each layer is electrically connected to each other layer, so that in claims 1, 9, and 14, the first connector electrically connects the first conductive layer to the first and second electrode layers. In claim 2, the current path is as claimed. For claim 4, the gap is depicted as smaller. For claim 8, the connection is at the sides via 7a. For claims 10-11, the gap is zigzag or waved with the gap as claimed. The paths for claims 12-13 are present as claimed since current flows across the gaps and device. While there is minimal current flow between the first conductive layer and second electrode via the resistance element since they are directly electrically connected by the first connector, there is some parallel minimal current flow since the direct electrically path of the first connector has a

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finite resistance so that the first connector and resistor are in electrical parallel. Similar remarks apply to the other current flow. For claim 14, the remarks above apply.


4. Applicant's arguments filed 3/17/5 have been fully considered but they are not persuasive. The elements regarding the first and second connectors near the first and second sides upon which applicant remarks are not found in the independent claims. However, with the interpretation above, it is not seen how the intended claim limitations would alter the finding. That is, each layer is electrically connected to each other layer as noted above. With respect to claims 1 and 14, Applicant may wish to claim, in order to overcome this prior art of record, that the first connector conductively electrically connects the first conductive layer located near a first side of the resistance element to the first electrode located near a second side of the resistance element to distinguish resistive electrical connections and the prior art of record. However, claim 14 still lacks the overlapping element as recited in claim 1 so that the prior art of record would still appear to read on that claim since each conductive layer and electrode appear to be substantially opposite and facing each other depending on what the terms mean.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl D. Easthom whose telephone number is (571) 272-1989. The examiner can normally be reached on M-Th, 5:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Karl D Easthom  
Primary Examiner  
Art Unit 2832

KDE